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# Propylene Methodology

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## General methodology

ICIS continuously develops, reviews and revises its methodologies in consultation with industry participants. The product specifications and trading terms and conditions used are intended to reflect typical working practices in the industry.

ICIS publishes market assessments based on information gathered from market participants about: spot transactions, spot bid and offer levels, contract price negotiations, prices of related commodities, and relevant freight costs.

ICIS does not make retrospective adjustments or changes to price assessments based on information received after publication time or after any cut-off point specified in individual methodology documents.

ICIS regards all arm's-length transactions which meet its specification criteria as carrying equal weight.

ICIS uses proprietary models where necessary to normalise data to the typical specifications for cargo size and date ranges given for each commodity.

Some ICIS assessments are the product of calculation alone, for example in markets where insufficient market activity takes place to permit price assessment, or where a market itself habitually sets prices according to a formula. Such calculated assessments are noted as such in their detailed methodology specifications.

ICIS endeavours to cross-check all the transaction information it gathers. ICIS will not use information for assessment purposes where such checks call into doubt the accuracy of the original information, or where a transaction appears to have occurred under circumstances that render it non-repeatable or otherwise markedly unusual.

## Rationale for propylene methodology

All ICIS-published spot assessments in the weekly propylene reports are so-called "week's range" assessments. That is, they are intended to represent the tradable value throughout the week leading up to the date of the report. Similarly, in the daily reports they are for the whole day. ICIS will indicate days where closure of particular markets due to public holidays would result in non-publishing and non-assessment days. The full week is defined from the report's deadline, e.g. Friday 17.00 to the following Friday 17.00.

The value published is intended to reflect the real transactable value of a commodity during the course of the reporting period (day/week). As such, transaction information would take precedence over bids and offers.



Where a confirmed deal is done for the same specification and loading range as confirmed bids and offers, and when all are declared to the market simultaneously, the deal will take precedence over the bids and offers. In illiquid markets, sole deals will be used together with bids and/or offers. In a liquid trading period, deals will form the basis of assessments. In the absence of any deals, bids and offers will be used. During the assessment process we may consider other information. However actual transactions, and bids and offers will always take precedence.

In the US market, due to lack of liquidity and confirmation, price assessments will be based on a combination of deals, confirmed or otherwise, bids, offers and price ideas.

The price assessments in northeast Asia are intended to represent tradable values throughout the week. In situations where there are no deals done at the end of the week and the transacted prices for the previous day are no longer repeatable, ICIS will refer to the prevailing bids and offers to set the price levels at which deals could potentially take place for the day. The daily price levels at the end of the week will also be included in the weekly published ranges.

In southeast Asia, fixed-price deals, and bids and offers are often limited. In such cases, efforts will be made to gather buy-sell indications to establish a level at which deals can potentially take place. Other information such as the prevailing CFR NE Asia prices, the FOB SE Asia prices and the demand-supply balance in northeast Asia and southeast Asia will also be considered as part of the assessment process.

The spot prices in the Asia daily and weekly propylene reports are assessed independently of each other. The “week’s range” is not derived using the lowest and highest of the daily assessments due to the nature of the market.

Spot liquidity tends to be inconsistent during the week, with the bulk of the transactions taking place towards the later part of the week.

Taking into account the liquidity factor and the opaque nature of the market, the daily assessments are typically based on a combination of bids, offers, and/or buy-sell indications, in addition to deals to ensure that there is sufficient data to form a price range that is reflective of the market.

The weekly assessment reflects mainly deals concluded in the week. Bids, offers and/or buy-sell indications may be taken into consideration in weeks when liquidity is insufficient.

ICIS takes into account a wide range of market input in making such choices, and reserves the right to exclude from its analysis any price information deemed unreliable or unrepresentative of the market. ICIS commits to describing the information it deemed reliable in the market comment



accompanying its assessments, including transactions, bids, offers and other market information used in making these assessments. This includes instances where ICIS typically makes assessments based on firm transaction or bid/offer information, but where that information was not available on a given day and alternative evidence was used.

Cargoes partially loading outside of the Assessed Trading Timeframe may be reflected in the assessment, but will not typically be used where there is deal/bid/offer information within the assessment period.

ICIS has adopted this “week’s range” methodology for Propylene reports based on several decades of market observation and feedback. Other measurement strategies, for example weighted averaging, are vulnerable to random variation in transaction levels and volume, which can give rise to distortions.

In addition, the exact volume of transactions for any given product is unknowable in advance, and a volume-dependent methodology is exposed to: a) the charge that lower volumes will result in less accurate prices, and b) to the possibility of failure in the event no transactions occur.

## Specifications for propylene

ICIS pricing quotes propylene in **Europe, Asia-Pacific** and the **US Gulf**.

Published weekly on Fridays, and a Propylene Daily (Asia) report is published Mondays-Fridays.

Real time market alert service delivers market news and trends throughout the day.

Price assessments are based on information supplied by market participants through the week up to close of business on Fridays at 1700 hours in London, Houston and Singapore.

Daily assessments are based on information gathered throughout the day up to the close of business at 1700 hours in Singapore.

**Specifications:** A minimum purity of 99.5% is assumed for polymer grade and 94% for chemical grade. In both cases, the assessments are made on a 100% or before purity basis in Europe. The refinery-grade price quote in the US is for product with a minimum purity of 60% and is quoted on a contained basis. (The propane portion of the stream is valued and sold separately). The price assessments for the daily and weekly Propylene (Asia) reports are based on polymer-grade propylene with an assumed purity of 99.5%. There are some producers in Asia with integrated derivative polypropylene (PP) plants that guarantee a minimum propylene purity of 99-99.4%. If deals occur for such propylene cargoes, they will tend to be placed at the lower end of the



price range. In the absence of Asian polymer grade deals, chemical grade propylene deals may be taken into consideration after normalisation at the discretion of the editor.

The weekly Propylene (China) report focuses mainly on polymer grade propylene with a minimum purity of 99.5%. However, in Shandong, some producers are selling propylene with a purity of between 99-99.6%, which is not strictly polymer grade material as defined by international markets.

**Timing:** In Asia, assessments cover cargoes loaded (FOB) or delivered (CFR) two-to-six week forward from the date of publication. In Europe, business is usually concluded within a six week forward delivery window from date of publication. However, given arbitrage movements, a maximum forward delivery window of 60 days applies for the quotations.

In the US, contract prices are tied to the delivery month referenced next to the price.

US polymer-grade propylene (PGP) and refinery-grade propylene (RGP) spot prices are assessed based on a combination of factors, including reported deals, bids, offers and market movements during the week.

Reported trades will form the basis for the spot price, if any are recorded, and will be sent to market players for confirmation. A trade will be considered to be a confirmed trade if multiple brokers, traders, buyers or sellers confirm the deal. In the absence of other market information, reported trades may be used if they fall within current market levels.

If only one trade is reported it will serve as the spot price range. If multiple trades are reported, the highest and lowest will serve as the spot price range.

If no trades are reported, bids and offers reported during the week will form the basis for the range. All bids and offers will be considered where they fall within current market levels. If one of either is not reported during the week, that part of the range will be filled in by the most recent reported trade.

When no spot prices or trades are reported, US spot chemical-grade propylene (CGP) prices will be assessed at a discount to spot PGP that reflects the current differential in contract prices between PGP and CGP for the assessed month.

The CDI Assayed Chemical Grade Propylene Contract price assessment is a formula based on 95% of the Polymer Grade Contract Price and 5% of the monthly average spot propane price. It is a delivered price via pipeline and prior to any additional discounts.



The CDI Chemical Grade Propylene Contract Price is a monthly price negotiated by the buyers and sellers in the market. It represents a delivered price via pipeline and prior to any additional discounts.

The CDI Polymer Grade Propylene Contract Price is a monthly price negotiated by the buyers and sellers in the market. It represents a delivered price via pipeline and prior to any additional discounts.

The CDI Refinery Grade Propylene Spot Price is an average assessment of physically executed trades in the spot market within the current month. It represents a delivered price via pipeline only and is prior to any additional discounts.

The CDI Refinery Grade Propylene Contract Price is an average assessment of physically executed trades in the spot market throughout the current month and any current month trades executed during the last half of the previous month. It represents a delivered price via pipeline and railcar and is prior to any additional discounts.

**Terms:** Asian prices are typically based on credit terms of LC 30 days in southeast Asia and up to LC 90 days in China.

**Weekly assessments that span the change of months:** Trades will be included for both months provided they reflect a delivery period in the month that the trade is performed. Trades that are done for the next month and are within current market prices can be considered if no other trades are reported for that month.

**Standard cargo size:** Typical cargo sizes in Europe range between 1,000-5,000 tonnes. In all reports, only sales in excess of 1,000 tonnes are taken into consideration for inclusion in bulk spot assessments. Inland European business refers to: pipeline deals; barge deals, typically up to 1,700 tonnes; rail tank car business, typically between 20-25 tonnes per car.

Pressurised cargoes in Asia range between 1,200-2,600 tonnes while the most widely traded volume size is around 1,500 tonnes. Larger-sized refrigerated cargoes are also traded and tend to range between 3,000-9,000 tonnes. Spot quotes are representative of polymer grade trades in either pressurised or refrigerated form.

Domestic sales in China are typically done on a lorry-tank basis and each lorry-tank can accommodate around 20-25 tonnes of propylene.

Typical spot cargos in the US range between 25-50 thousand barrels for refinery grade and 3-5m lb for polymer and chemical grade.





**Netbacks:** Netback calculations (i.e. CFR prices derived from FOB numbers + freight) are not usually considered sufficient to warrant an automatic adjustment of CFR assessments on the basis of open market freights. The use of COA vessels in Asia-Pacific and the need for employment can lead to below-market freight components to apply. However, netback calculations may at times be used to derive the FOB SE Asia and CFR SE Asia prices when there are limited fixed-price discussions. ICIS may consider the northeast Asian prices less freight component to establish a workable FOB SE Asia price level in situations where southeast Asia has surplus cargoes to be shipped to northeast Asia. Similarly, a freight component may be applied to FOB SE Asia prices to establish a workable level for CFR SE Asia prices. Freight components may be similarly applied to CFR NE Asia prices for FOB NE Asia and FOB Korea assessments in the absence of concrete discussions.

**Normalisation:** In exceptional cases where the lack of liquidity represents a challenge in making assessments, editors can choose to adopt a normalisation process to include deals/trades information which falls outside the standard specifications listed in the methodology pertaining to, but not limited to, volume, timing, delivery, payment terms, import tariffs, product specifications and other operational matters. The normalisation process adopted should be in line with standard practices and will only be used either as a reference for assessments, or be included as part of the assessment range. Where normalisation has occurred and has been reflected in a published price assessment, this will be described in the text of the report and the process will be described and justified.

## Propylene (EUROPE)

### Weekly Price Assessments

#### Propylene Monthly Contract Price

- FD NWE (EUR/MT & conversion to US CTS/LB)

#### Propylene Chemical Grade Spot Prices

- FD NWE (EUR/MT & conversion to US CTS/LB)
- CIF NWE (EUR/MT & conversion to US CTS/LB)

#### Propylene Polymer Grade Spot Prices

- FD NWE (EUR/MT & conversion to US CTS/LB)
- CIF NWE (EUR/MT & conversion to US CTS/LB)

The European propylene contract price is a reference price established monthly. It is a gross price meaning that it is subject to discounts or rebates tailored to suit each individual account relating to volume size and/or delivery



terms. These form part of the terms and conditions of any contract and are agreed on a private and confidential basis.

The contract reference price is negotiated between independent producers and their consumers – the contract participants. Each participant has a large, net buy or sell position and more than one contract participant counterparty. All derivative sectors are represented.

Discussions to ascertain the next month's contract reference price usually take place between contract partners during the last few working days of the month. Feedstock developments and supply and demand fundamentals are the traditional drivers in the negotiations.

The bilateral discussions take place. Contract participants have more than one counterparty in these discussions.

The single number contract reference price is published as soon as confirmation has been obtained from a minimum number of arm's length contractual partners; ICIS requires direct confirmation from all parties involved.

The minimum number of participants required to establish the CP is 4 – also known as the “2+2” ie, at least two producers, two consumers. In practice though, it is very common to have more than the minimum 2+2 involved.

ICIS will not publish or communicate any numbers to the market until the minimum 2+2 has been fully confirmed.

## **Propylene (ASIA-PACIFIC)**

### *Propylene Daily Spot Prices*

- CFR S.E. Asia (USD/MT & conversion to US CTS/LB)
- CFR N.E. Asia (USD/MT & conversion to US CTS/LB)
- FOB N.E. Asia (USD/MT & conversion to US CTS/LB)

## **Weekly Price Assessments**

### **Propylene Spot Prices**

- CFR N.E. ASIA (USD/MT & conversion to US CTS/LB)
- CFR CHINA MAIN PORT (USD/MT & conversion to CTS/LB)
- CFR S.E. ASIA (USD/MT & conversion to US CTS/LB)
- FOB N.E. ASIA (USD/MT & conversion to US CTS/LB)
- FOB KOREA (USD/MT & conversion to US CTS/LB)
- FOB S.E. ASIA (USD/MT & conversion to US CTS/LB)





The CFR China Main Port quote reflects the prices of shipments to the following east China ports: Zhapu, Nantong, Lianyungang, Shanghai, Ningbo, Rizhao/Lanshan and Changshu.

The CFR NE Asia range reflects prices for cargoes to main ports in China as well as other Chinese ports such as Fujian, Nanjing, Longkou, Taixing, Tianjin, Yizheng and Dongying. It also includes deals into Taiwan and South Korea.

Non-dutiable cargoes from Taiwan and southeast Asia that are sold into China will be normalised to a 1% import duty basis, except in cases where there are alternative options to deliver dutiable cargoes at an agreed price.

For example, when a deal is done at \$1,400/tonne CFR CMP for a non-dutiable Taiwan-origin cargo, ICIS will first normalise the price to \$1,386/tonne CFR CMP on a 1% duty-paid basis by dividing the \$1,400/tonne/tonne CFR CMP price by 1.01. The \$1,386/tonne CFR CMP price will then be included in the assessed CFR CMP range.

## **Propylene (CHINA)**

### **Weekly Price Assessments**

- SHANDONG EX-TANK (CNY/MT)
- EAST CHINA EX-TANK (CNY/MT)
- CFR CHINA MAIN PORT (USD/MT)

In the domestic Shandong market, spot activities are dominated by sales from refineries in Shandong to end-users.

In eastern China, the assessment is based on local producers' propylene sales prices and the prices of imported material sold by local distributors.

The report also includes a table of list prices from major producers in the country. ICIS provides information on Sinopec's ex-tank prices in east and south China. We also provide the ex-works prices of producers in Shandong and northwest China.

## **Propylene (US GULF)**

### **Weekly Price Assessments**

Propylene Monthly Contract Prices (DEL):

- CHEMICAL GRADE (US CTS/LB & conversion to USD/MT)
- POLYMER GRADE (US CTS/LB & conversion to USD/MT)



## Propylene Spot Prices (DEL):

- DEL (pipeline) PROPYLENE CHEMICAL GRADE (US CTS/LB & conversion to USD/MT)
- DEL (pipeline) PROPYLENE POLYMER GRADE (US CTS/LB & conversion to USD/MT)
- DEL (pipeline) PROPYLENE REFINERY GRADE (US CTS/LB & conversion to USD/MT)

## Other principles and guidelines

### Changes to methodology

All markets evolve and ICIS has a duty to ensure its methodologies for market-reporting evolve in step with markets.

ICIS therefore regularly conducts internal reviews of the appropriateness of its methodologies, based on industry feedback.

Draft changes are then made public and comment requested from industry participants, with a minimum one-month notice period, except where, exceptionally a *force majeure* event (natural disaster, war, bankruptcy of a trading exchange etc.) makes necessary a shorter notice period.

ICIS is committed to reviewing all comments on proposed methodology changes, but in some cases may find it necessary to alter its methodologies against the wishes of some market participants.

In addition, ICIS has a formal methodology consultation process. The company commits to holding this consultation every three years for the Propylene Reports. The date of the last consultation launched and the expiry date by which the company commits to conducting the next consultation can be seen at the top of the methodology document.

Please also refer to the Methodology Consultation Process section of the company's Compliance Manual. This contains detailed flow charts documenting the internal and external review and consultation process.

### Consistency

ICIS achieves consistency between its assessors in exercising their judgement by requiring all assessors to follow this detailed methodology as well as the company's Editorial Standards document. In addition, ICIS reporters are required to complete standard training before undertaking the work of a market reporter. Every reporter's work is spot checked.



## Data standards

ICIS has a public Data Standards Policy which covers the type and quality of information we ask market participants to report.

The following principles relate to ICIS propylene assessments and commentaries:

- Where possible, please allow access to active market traders and allow them to comment on active news stories.
- Where possible, please provide market data from both front and back-office functions.
- Where possible, please provide complete data and not a subsection.
- Flag inter-affiliate transactions.
- Flag sleeve trade.
- Flag spread trades.
- When a source or contact leaves the organisation please contact ICIS to the replacement (ICIS requests that both the source and the organisation contacts them).
- Where information is not validated by the source (i.e. rumour) please indicate as such.

## Delivery locations for price assessments

Locations for ICIS propylene assessments are chosen to reflect the concentration of liquidity on the traded markets.

## Exercise of judgement

Apart from instances where data may be excluded (see below), ICIS will typically exercise judgement where market information about firm bids and offers or transactions is not available.

In most cases this will involve the application of spread trade information or prevailing market relationships, detailed in the specifications section for each grade in this document.

ICIS will also exercise judgement where only a bid or offer is available, or where a bid/offer spread is so wide as to be unhelpful in establishing tradable value. In both instances, spreads to other grades or prevailing market relationships will typically be used to assess the price. In these cases the assessment will still fall above the highest firm bid and below the lowest firm offer, as long as the bid and/or offer information meets all other criteria specified in this methodology.

## Exclusion of data

In line with its Editorial Standards policy, ICIS reporters actively seek to identify anomalous market information and exclude it from the assessment



process. For crude market assessments, this is done by the daily information gathering and verification process carried out by reporters, whereby market transaction, bid and offer information is confirmed and verified by multiple sources.

In assessing propylene markets, ICIS takes into consideration only arms-length transactions between non-affiliated parties.

ICIS does not accept bids or offers that are not firm. Any bid or offer which is demonstrably not firm will be disregarded and further bids or offers from the same counterparty may also be disregarded.

ICIS also excludes from its assessments transactions where ICIS market reporters have reasonable grounds to doubt that a transaction is representative of typical market behaviour: for example, where a deal is concluded disregarding the best bid or offer on the market; where there is evidence that a market participant has disclosed only part of its market activity to ICIS; or where a transaction lies outside the prevailing range of typical market activity.

ICIS records instances of anomalous data and reviews these instances on a regular basis with a view to determining if a pattern exists.

Where market reporters have concerns over the behaviour of a market participant, this will be escalated using the ICIS Escalation Process for Compliance and Regulatory Issues. This can be found in the company's Compliance Manual.

## **Market communication**

ICIS communicates with a broad range of market participants – traders, brokers, back-office employees, supply managers, operations personnel and company executives – to obtain market information.

ICIS communicates with participants by telephone, email, instant messenger and in person. All instant messenger, email communication and notes of any face-to-face communication are archived and details of telephone communication are logged and data-based.

ICIS does not accept instant messenger communication from unknown parties, and reporters are required to verify a market participant's identity prior to using IM communication.

ICIS does not regard in any way as binding attempts by companies to restrict ICIS communication with their employees. ICIS has a duty to its subscribers to obtain the maximum possible amount of market information. ICIS treats all communication from market participants as confidential.



ICIS reporters are bound by a Code of Conduct to report to their superiors any coercive or threatening communication from market participants, or any offers of inducements of any kind intended to influence an assessment.

Where improper communication appears to have taken place, ICIS will communicate in the first instance with senior management at the company or companies involved, and if necessary with relevant market authorities.

ICIS expects the highest standards of propriety from all market participants, and regards all communications from market participants as representative of the views of an individual's employer.

ICIS is committed to the highest levels of customer service, and has a formal feedback and complaints policy, which can be viewed here:

<http://www.icis.com/about/icis-feedback-policy>

### **Market data verification**

ICIS will always make best endeavours to confirm bids, offers and transactions with the relevant party/parties. ICIS attempts to cross-check all market data received from a buy or sell-side participant with a participant's trading counterparty.

Where both counterparties to a transaction cannot or will not confirm the data, ICIS seeks corroboration from other market sources.

Where transaction or bid/offer information has been received from a trader rather than from a company's back office, ICIS always seeks confirmation from other sources.

Where ICIS has grounds to doubt an item of market data, it may request further evidence that a transaction has taken place, including documented evidence.

ICIS treats transaction data received from active brokerages as confirmed.

On occasion, in markets with low liquidity and a low number of counterparties, ICIS may choose to use unconfirmed data, but only in so far as it is aligned with other market information and comes from a source deemed reliable by ICIS based on previous interactions.

### **Minimum data threshold**

Because of the sometimes thinly traded nature of some markets, ICIS does not have a minimum data threshold for its assessment methodologies in this market.



ICIS makes clear in its daily market comments whether it has assessed a price based on transaction or bid/offer data or whether it has used other forms of evidence or calculation.

### **Selection of participants**

ICIS policy on general market data is that we welcome all information regardless of source or constitution as long as it is provided in good faith as true.

However, only active market participants verified as such by existing active industry participants and verified as a viable business by ICIS investigations will be allowed to contribute price data to ICIS for the purpose of assessing tradable market value under this methodology.

### **Unit prices and credit terms**

Propylene in all regions is generally traded in US dollars/tonne, cents/lb or euros/tonne and therefore all price assessments are quoted on these bases.

Typical credit terms for propylene are 30-90 days from Bill of Lading date.

### **Volumes**

For each region ICIS publishes the standard cargo size, found in the specifications sections of this methodology document. Market information for cargoes conforming to these standards will be fully considered in the assessment process, providing the information conforms to all other specifications and conditions published in this methodology.

As indicated earlier, if ICIS has market information regarding cargoes outside of these published ranges, it will be normalised together with any standard-sized cargo information. In this case, ICIS will seek to establish whether there is a market price premium or discount for the non-standard cargo and apply this for the purpose of making its assessment.

### **General Methodology Guide for ICIS Chemicals**

ICIS endeavours to provide a fair and timely representation of traded prices, which could be used as an effective reference point for market participants. As no two markets are the same, ICIS hopes to tailor methodologies which reflect the needs of each specific commodity market it covers based on factors such as, but not limited to, geography, trade flows/logistics, market size, product characteristics, participants and regulation. ICIS adopts an open policy to feedback regarding its methodology and will conduct reviews on a regular basis.





## Spot range assessments

Published daily and weekly, these delineate the typically tradable range for a full working day or week.

The range is normally established using verified typical transactions and standardized atypical transactions.

In the event that no relevant transactions have occurred in the assessed period, ICIS will establish a range using bids and offers for typical spec material; and using established market relationships resulting from manufacturing economics, product linkages, freight and forward markets.

## ICIS Mid-Point

Established referencing to ICIS prices often refer to the mid-point of the range as the fair representation of the commodity's traded value.

Weekly range assessments are marked in some ICIS reports with a "+" to distinguish them from spot close assessments (see below).

Instrument function: In liquid markets, ICIS would typically focus on the majority traded principle which would typically exclude deals considered to be outlier deals and unrepresentative of the general market consensus. Provides overview of market activity over course of one day in the case of daily reports, or one week in the case of weekly reports. Any change in assessment periods as a result of public holidays arising in any given week will be indicated via subscriber notes. Width of range offers insight into current levels of market volatility, and could also infer associated differentials caused by logistical and product variances.

ICIS endeavours to keep a tight range through maintaining detailed methodologies but this is difficult in thinly traded markets. Variable range width means assessment trades off accuracy for inclusivity, and transparency is reduced vis-a-vis spot close assessment. Suitable for inclusion in averaging mechanisms and market analysis tools.

## Spot close assessments

Published daily and weekly, these reflect the transactable market value of the assessed product at the close of business for the assessed period (daily or weekly). Assessments are nevertheless shown as a low-high range, indicating the "space" in which a transaction is deemed to have been possible at the specified time. This low-high is typically tighter than that shown in a Spot Range assessment. The assessment is established taking into account:

- typical, repeatable transactions at arm's length between non-affiliated market participants;
- standardized "atypical" transactions, where it is possible to derive a typical



equivalent market value for a transaction which does not conform to standard specifications;

- bids and offers for typical spec material;

- movements in related markets. In the absence of reliable, confirmable market information for a specific commodity, ICIS reserves the right to compute changes in specific assessments based on established relationships derived from manufacturing economics, product linkages, freight, and forward markets.

Weekly/Daily Spot Close assessments are marked in some ICIS reports with a “\*” to distinguish them from Spot Range assessments (see above).

Where possible, editors will indicate any weightage used for spot close assessments which are weighted towards an active period.

Instrument function: Reflects most recent tradable market value with high transparency and high accuracy. Suitable for inclusion in averaging mechanisms and market analysis tools.

## Indexes

In some markets, ICIS publishes volume-weighted averages – known as “indexes” or “indices” – of verified typical transactions over specified periods, either daily or weekly.

Inputs to an index are checked editorially for conformity to specification and statistical outliers are eliminated. See individual methodologies for details.

Instrument function: An index is a mathematically derived indicator of typical traded value over a given period. Because it is an average, the deviation from the last transacted value at the close of business could be substantial, depending on the time period assessed hence does not always provide a currently transactable price indication.

## Contract reference prices

These are publicly announced, often single number, reference contract prices, agreed in multilateral negotiations and used as a base price for contractual sales of material by producers, typically between major producers and large end-users. ICIS publishes Contract Reference prices once confirmation is obtained of at least two agreements between recognised contract partners of significant size. Note that the date of publication can vary for each contract period depending on the speed of industry negotiations.

It is common for discounts to be associated with announced contract prices, which are usually not common knowledge.



Instrument function: Contract reference prices are used in some markets as the basis for monthly or quarterly contracts and form the basis for further negotiations between producers and buyers on volume-related discounts or premiums.

### **Contract price assessments**

Published weekly, these reflect the achievable “base price” for contractual sales of material by producers, either to onward “distributors” or direct to end-users. Prices, typically valid either for one month or for three, are arrived at by negotiation between producers and buyers, and are updated by ICIS once confirmation is obtained of agreement between major producers and typical buyers of the size indicated in individual specifications. Note that most contract prices are agreed as a base from which discounts or premiums are given to individual buyers, and that the size of these discounts typically varies based on the volume purchased over the contract period by the buyer.

In the event that market participants fail or decline to confirm outright contract price levels to ICIS, ICIS reserves the right to make its assessments of achievable contract prices based on established market relationships derived from manufacturing economics, product linkages, freight, and forward markets.

Instrument function: Provides view of baseline for currently prevailing contract mechanisms, where these are statically determined – that is, bilaterally negotiated contracts not based on automated averaging of spot market prices.

### **Distribution indicators**

Published weekly for some markets, these reflect contract prices net of known discounts to typical-sized product distributors. See individual methodology statements for details.

Instrument function: Provides additional insight into typical prices paid by buyers in statically determined (i.e. bilaterally negotiated contracts not based on averaged spot market prices).

### **Margins**

Published in ICIS Margin Reports, margin prices reflect computed differentials between different products related through the processing chain.

Instrument function: Provides insight into supply chain economics and industry profitability. A useful reference for baseline production cost calculations, particularly by tracking the margin shifts across different periods. Theoretically determines scope of pricing further along processing chain. Note that market behaviour sometimes violates apparent margin economics. Suitable for in-depth market and industry analysis.



## List or posted prices

Published weekly for some markets, these are released by manufacturers as suggested selling prices. In many cases, these prices are reduced after negotiations with buyers. Price changes are sometimes used as important references for negotiations in thinly traded markets.

## Price changes

The change in prices from the previous period is indicated in blue as an increase (+), in red as a decrease (-) or no change (n/c) or not assessed (n/a). Changes for prices at the low end of each range are shown at the left and changes for prices at the high end of each range are shown at the right. Changes in weekly spot prices represent the changes from the previous week and changes in monthly or quarterly contract prices represent the change from the previous month or quarter.

## Report name

Some reports cover a range of products. Trade in product of inferior quality (off-spec) is taken into consideration when it affects the market for material that meets standard specifications. Reference to off-spec/distressed cargo is at the discretion of the editor.

Periods referred to in contract price quotations are either months (noted by standard abbreviations) or quarters of the calendar year.

Q1 January February March  
Q2 April May June  
Q3 July August September  
Q4 October November December

## Feedstock prices

Contract prices for certain feedstocks are shown where appropriate. In all cases where feedstock prices are shown, they have been taken from the current ICIS pricing report for the product.

## Date

ICIS pricing reports are written on the day of publication. The only exceptions are when a public holiday impacts the market. In some circumstances reports will be compiled one or a maximum two days early. When this occurs, it is clearly marked on the report. ICIS pricing provides daily and weekly pricing reports. Deadlines (unless otherwise specified in the methodology) are 1700 hours local time in London, Singapore, Shanghai and Houston. Market close prices refer to this deadline, unless specified otherwise.

Contract price assessments are updated in reports as soon as possible after confirmation is obtained of contract settlement. Because the amount of time



required to reach contract agreement varies from month to month, it is not possible to guarantee publication of monthly contract prices at the same point in each month.

Note that information received after the relevant close cannot be used for assessment purposes, nor can a correction be issued based on subsequently received information.

The date of publication is not altered in the event of public holidays. All weekly reports are published at least 50 times per year. Certain reports are not published during a two-week period in late December/early January. Daily reports are published five times per week, but may not appear on certain days due to public holidays. Please refer to the ICIS pricing publishing schedule for more detailed information.

### Geographical regions

ICIS pricing normally covers products on a regional basis to ensure the main drivers impacting the market in any given area are adequately covered. Reports are currently issued covering Europe, the Middle East, Asia or Asia-Pacific, China, India, West Asia, the United States or North America, Latin America, and the Former Soviet Union.

Within these broad areas the most common quotations comprise:

<b>NWE</b>	mainland Northwest Europe (N. France, N. Germany, Benelux)
<b>Med</b>	Southern France, Spain, Italy
<b>NE Asia</b>	Taiwan, Korea, Japan, China
<b>SE Asia</b>	Singapore, Philippines, Indonesia, Malaysia, Thailand, Vietnam
<b>West Asia</b>	Pakistan, India
<b>East Asia</b>	NE Asia & SE Asia
<b>GCC</b>	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE
<b>E. Med</b>	Greece, Israel, Egypt, Syria, Jordan, Lebanon
<b>FSU</b>	Former Soviet Union: Russia, Ukraine, Belarus, Uzbekistan, Kazakhstan
<b>USG</b>	US Gulf
<b>CMP</b>	China Main Port
<b>Northern Africa</b>	Morocco, Algeria, Tunisia, Libya, Egypt, Sudan



<b>Eastern Africa</b>	Eritrea, Djibouti, Somalia, Kenya, Tanzania
<b>Southern Africa</b>	Namibia, Mozambique, South Africa
<b>Western Africa</b>	Mauritania, Senegal, The Gambia, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Côte d'Ivoire, Ghana, Togo, Benin, Nigeria.

## Quotation basis

Prices are quoted with reference to the terms and location of delivery. The period of delivery is also quoted for contract prices. Assessment windows vary from product to product for spot sales. See specific product entries in the Methodology for further details.

Incoterms devised by the International Chamber of Commerce are mainly used to indicate what costs are included in the price. Assessments do not include Value Added Tax (VAT). Terms regularly used in ICIS pricing reports can be found in the Glossary.

## Units

Prices are quoted in the currency and unit measure relevant to the particular market. Most chemicals are quoted in US dollars per metric tonne (\$/MT), although euros per metric tonne (€/MT), US cents per pound (US CTS/LB) or US cents per gallon (US CTS/GAL) are frequently used. Historical data includes assessments previously measured in European currencies superseded by the euro.

## Conversions (weights and measures)

Prices are converted to other currencies and unit measures for ease of reference. Conversions are derived from the quoted price assessments using standard rates of conversion and current exchange rates. Conversions involving weights and volumes are calculated within industry acceptable ranges, which vary from product to product according to specific gravity (e.g. USD/MT to CTS/GAL).

## Foreign exchange rates

ICIS provides exchange rates for a variety of international currencies that are time aligned with publication of our pricing reports and consistent for analytical use when applied to historical pricing data. Because of our publishing schedule, certain rates used in some reports may be changed as data moves into a historical database. The ICIS methodology used is as follows:

Rates are not established by ICIS pricing but are published by arrangement with Xenon ([www.xe.com](http://www.xe.com)). The exchange rates shown are those in effect at the time and date indicated, normally around 17:15 hours in London on the day of publication. They are not a mean or average of exchange rates in effect





during the period since the report was last published, but reflect a mean of the bid/offer at the time taken for that particular day. Exchange rates published by ICIS pricing are intended only as a reference and rates offered by local banks or other financial institutions may vary.

- Exchange rates quoted at the foot of the text in ICIS pricing reports are mid-market rates, quoted to two decimal places, applicable on the date of publication. ICIS pricing also offers a real-time currency conversion tool via XE.com, with a click-through link from the pricing reports, to enable subscribers to make quick exchange calculations.
- Exchange rates used for the current day's price assessments in compiling the charts contained within ICIS pricing reports are mid-market rates issued at 01:00 UTC on the date of publication. This preliminary exchange rate is used to allow charts to be produced ahead of 16:00 UTC.
- Exchange rates applied to historical data are mid-market rates issued at 16:00 UTC on the date of publication.

ICIS pricing also offers a real-time currency conversion tool, with a click-through link from the pricing reports, to enable subscribers to make quick exchange calculations.

## Non-market price adjustments

Non-market price adjustments are necessary on the rare occasions when after careful consideration it is determined that the level of a price assessment is deemed to have become unrealistic. Before any decision is taken to adjust a price level, a broad spectrum of market participants is polled for their views on both the necessity and potential impact of any planned change and its timing.

Once it is clear an adjustment is required, ICIS pricing posts a notice telling subscribers it intends to make the change, and asks for any feedback over a two week period. After two weeks, and if it is decided to proceed, a second notice is posted informing subscribers that the adjustment will be made two weeks later. All price adjustments take place with a minimum four weeks public notice to subscribers.

Once the adjustment has taken place it is prominently mentioned in the price report it applies to. ICIS also adds a note to the online Price History to explain the apparent step-change in prices. It is important to note that price change deltas remain unaffected by any adjustment and the price trend remains accurate.



## Contract Price Change Deltas

In some markets, contract settlements – especially quarterly ones – can evolve further after the initial assessment. This may mean that the actual market movement to the next settlement may not be fully aligned with the mathematical difference between the reported prices in one period and the next. In such cases, ICIS may make an editorial decision to publish the new period's price range without including a delta value in the price table. The reasons for doing so and the indications of the actual market movement would be discussed in the text of the report. The delta box in these cases would show as “not assessed” (n/a).

## Price history – key changes to methodology for contract prices

ICIS price history has been modified such that contract price assessments now relate to the period to which they apply irrespective of their settlement date. This change has been applied retrospectively to all quotes, including discontinued quotes.

As a result:

For a monthly contract (or quarterly) quote selected as frequency ‘C’ and downloaded as csv or displayed as a table in the original quoted currency the report date is given as the first of the month (or quarter). For a contract selected as frequency ‘C’ and displayed as a graph, a ‘stepped’ chart of the value (or average of the low and high where applicable) is displayed with the steps occurring on the first of the month (or quarter).

For a contract quote selected as frequency ‘C’ in any currency other than the original a single monthly (or quarterly) value (low, high and average) is displayed. This value is derived using an average of the foreign exchange rates taken at 16:00 UTC (GMT) on each of the publication dates within the month (or quarter). For the current period, the average foreign exchange rates for all the publication dates within the period to date are used.

For a contract quote selected as frequency ‘W’, the report date is given as the ICIS pricing weekly report publication date – the contract value (low, high and average) applicable to that month (or quarter) is displayed (which, depending on settlement date, may differ from the contract value reported at the time in that week's ICIS pricing report). For a contract quote selected as frequency ‘W’ and displayed as a graph, a ‘stepped’ chart is displayed with the steps occurring on the first publication date within the month (or quarter).

For a contract quote selected as frequency ‘W’ in any currency other than the original, the contract value is converted for each week using the foreign exchange rate taken at 16:00 UTC (GMT) on the publication date.



Where a contract for the current period has not yet settled, no contract value shows in a weekly price history series – price history terminates at the end of the period to which the last settled contract price applies.

Where a contract settles for a future period, it does not display in price history until publication of the first ICIS pricing report within that period.

Where an initial contract value is reported for a period, and subsequently revised, the latter (or latest) value is taken as the contract value for the whole period.